

Management

Jim Alessi

July 25-27, 2005





Outline



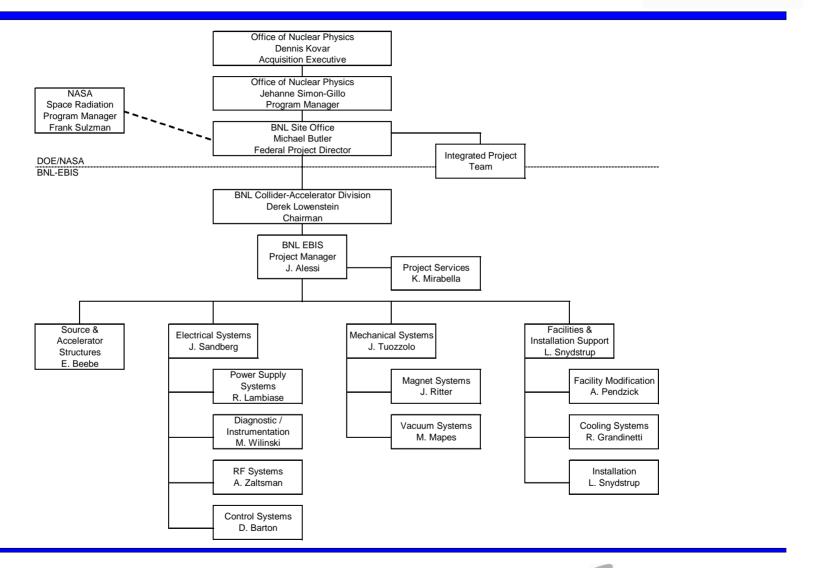
- Organization chart
- Safety
- Project Execution Plan
- Change control
- Risk assessment
- Communication and reporting plan
- Cost/Funding/Work
- Summary





Management Organization Chart for EBIS



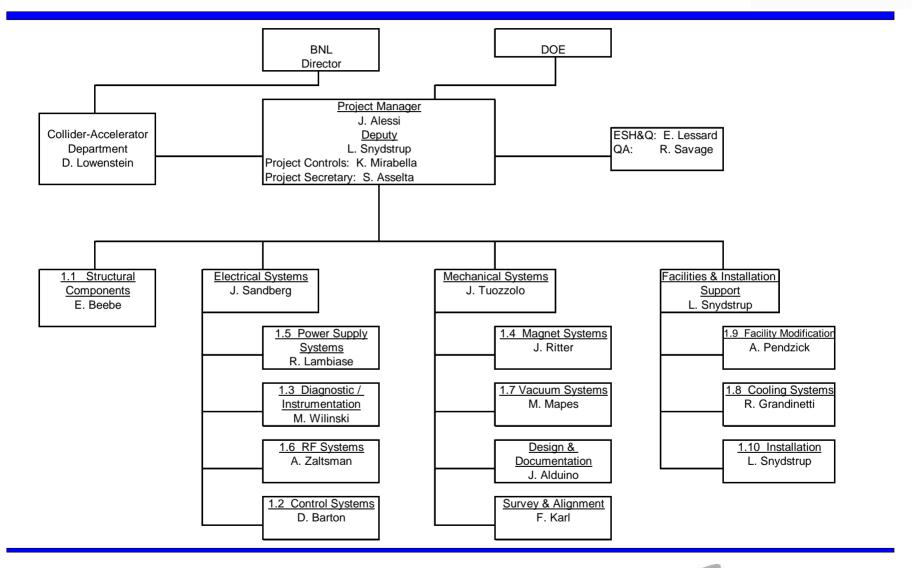






EBIS Management





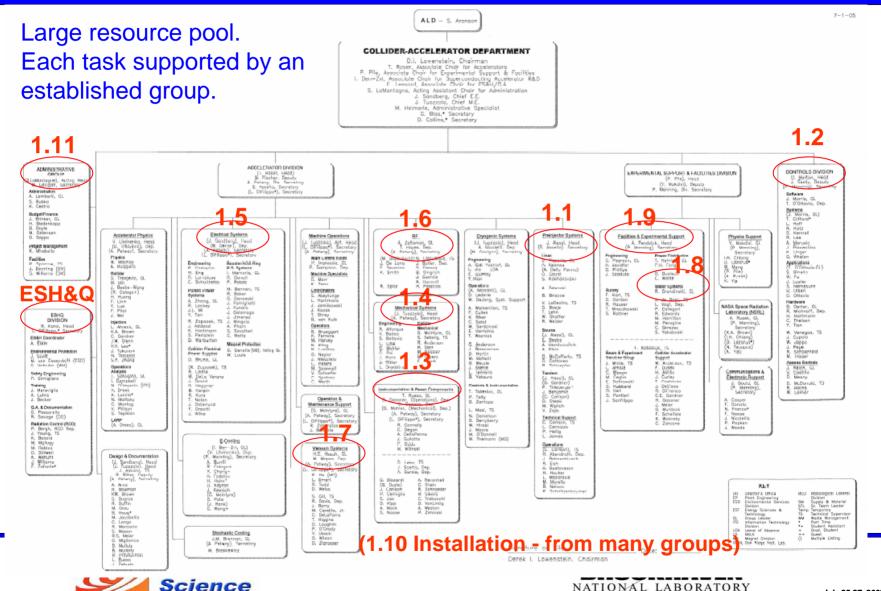




Subsystem responsibilities in C-AD Org Chart

U.S. DEPARTMENT OF ENERGY





Safety



- Lab makes safety a top priority; strong emphasis on working safely. Safety will not be compromised on this project.
- C-AD ESH&Q Group is very experienced and very helpful. They
 work along side those in the field in helping with work planning,
 process reviews, procedure writing, etc. We have all become
 sensitive to what is required to work safely, are accustomed to
 the processes, receive the appropriate training, etc.
- Safety representation on Integrated Project Team
- We have a high confidence that this project will be done safely.





Project Execution Plan



TABLE OF CONTENTS

	1	IN	TRODUCTION	7			
X	2	MI	MISSION NEED7				
Y	3	FU	FUNCTIONAL REQUIREMENTS10				
\sim			TECHNICAL SCOPE 12				
X	4	TE	CHNICAL SCOPE	.12			
		4.1	SOURCE & ACCELERATOR STRUCTURES				
		4.2	ELECTRICAL SYSTEMS				
		4.3	MECHANICAL SYSTEMS				
		4.4	FACILITIES & INSTALLATION SUPPORT	. 14			
		4.5	DELIVERABLES				
		4.6	ALTERNATIVE ANALYSIS	. 15			
→	5	MA	ANAGEMENT ORGANIZATION	.17			
		5.1	GENERAL	.17			
		5.2	PROJECT MANAGEMENT RESPONSIBILITIES	.18			
		5.2	.1 Department of Energy	. 18			
		5.2					
		5.2	.3 Brookhaven National Lab	. 19			
		5.2					
		5.2					
		5.2					
		5.3	INTEGRATED PROJECT TEAM				
		5.4	OPERATION PHASE				
		5.5	LIFE CYCLE COSTS.				
X	,	60	HEDULE AND COST SCOPE				
^	0	SC					
		6.1	PRELIMINARY SCHEDULE SCOPE	.23			
		6.1	.1 Milestones	. 25			
		6.2	PRELIMINARY COST SCOPE	. 25			
		6.2	.1 Funding	. 27			
		6.2	.2 Contingency	. 27			
		6.2	.3 R&D	. 29			
→	7	CH	IANGE CONTROL	. 29			
	8	AN	ALYSES, ASSESSMENTS AND PLANS	.30			
		8.1	ENVIRONMENT, SAFETY AND HEALTH	.30			
		8.1					
		8.1					
		8.1	,				
		8.1					
		8.2	PROJECT QUALITY ASSURANCE PROGRAM				
		8.2	•				
		8.2					
			3 Documents and Records				

8.2.4	Work Process	36
8.2.5	Design	
8.2.6	Procurement	37
8.2.7	Inspection and Acceptance Testing	37
	SK ASSESSMENT	
<u> 9</u> <u>PROJE</u>	CT CONTROLS AND REPORTING SYSTEMS	38
APPENDIX	A: WBS DICTIONARY	39
GLOSSARY	47	

x = previous talks





X

Project Management Responsibilities



- Within DOE's Office of Science (SC), the Office of Nuclear Physics (NP) has overall DOE responsibility for the EBIS MIE.
- Jehanne Simon-Gillo has been assigned the Federal EBIS Program Manager.
- Michael A. Butler has been assigned as the Federal Project Director at the Brookhaven Site Office (BHSO).
- Frank M. Sulzman, Space Radiation Program Manager, NASA Headquarters will be the NASA representative to the EBIS Project.
- Funding for this project will be directed through BNL's Collider-Accelerator Department. Fiscal and management responsibility for the fabrication of EBIS will reside with the Chairman, Derek Lowenstein.
- The Chairman for the Collider-Accelerator Division, Derek Lowenstein, has appointed James Alessi as the EBIS Contractor Project Manager.





Integrated Project Team



DOE Federal Project Director (Chair)	Michael A. Butler
DOE Program Manager for EBIS	Jehanne Simon-Gillo
NASA Space Radiation Program Manager	Frank Sulzman
BNL Project Manager for EBIS	James Alessi
BNL ESSH Lead	Ed Lessard
C-AD Assistant Chair for Administration	Stephanie LaMontagne





Summary of Baseline Change Control Thresholds



Level	Cost (Table 6-2)	Schedule (Table 6-1)	Technical Scope (Table 3-2)
DOE-SAE (Deviation Threshold)	25% increase to TEC	6 or more months increase (cumulative) in a project level milestone date	Changes to scope that affect mission need requirement
DOE-SC-26 Program (Level 0)	Any increase in the TEC or cumulative allocation of more than \$500k contingency	3-month or more delay of a Level 1 milestone date	Change of any WBS element that could adversely affect performance specifications (Table 3-2)
DOE-BHSO Federal Project Director (Level 1)	A cumulative increase of more than \$250k in WBS Level 2 or cumulative allocation of more than \$250k contingency	> 1-month delay of a Level 1 milestone date or > 3-month delay of a Level 2 milestone date	Any deviation from technical deliverables that does not affect expected performance specifications
EBIS Contractor Project Manager (Level 2)	Any increase of >\$50k in the WBS Level 2	> 1-month delay of a Level 2 milestone date	Technical design changes that do not impact technical deliverables





Risk Assessment (draft form)



a) Likelihood of Occurrence

- •Very likely (VL): risk is likely to occur with a probability greater than or equal to 90%
- •Likely (L): risk is likely to occur with a probability greater than or equal to 50%
- •Unlikely (U): There is a less than 50% chance that this event will occur

b) Consequence

	Marginal (M)	Significant (S)	Critical (C)
Cost Impact on project contingency is:	<\$100K	\$100K - \$500K	>\$500K
Schedule Impact on project schedule is:	None	Impacts milestone dates	Impacts project early finish date
Technical Impact on project performance is:	Minor degradation	Significant degradation	CD-4 will not be met

C) Risk Categorization Matrix

	•		
Likelihood of	Marginal	Significant	Critical
Occurrence			
Very likely	Medium	High	High
Likely	Low	Medium	High
Unlikely	Low	Low	Medium

Consequence





Risk Assessment



- Risk of not proceeding with EBIS:
 - significant upgrades to the Tandems will be required
 - some desired beams unavailable to NASA
- Technical risk on EBIS is low due to the successful source development
 - Test EBIS is full electron beam current. Factor of 2 scaling in ion output is well understood.
- Technical risk on RFQ and Linac is low
 - mature technologies, many similar devices in operation at other facilities.





Risk Assessment (cont.)



- Cost risk due to fluctuations in the currency exchange rate on foreign procurements (RFQ and Linac) (medium)
 - Have increased contingency on foreign procurements (30-40%)
 - Planned early procurement of RFQ
 - Try to make contracts in US\$
- Schedule risk due to conflicts with Booster operations schedule (medium)
 - Most work can proceed in parallel with Booster operations
 - Provide plenty of slack in procurement of the Booster-side components.
 - One could reduce time required for installation of Booster-side of HEBT by working 2 shifts if necessary





Risk Assessment (cont.)



Delays in major procurements

(low)

- Consider vendor history when awarding contract
- Intermediate vendor milestones
- Frequent communications with vendors
- Vendor visits
- Delays in funding

(high)

- Try to avoid scheduling large procurements in Q1 of any FY
- Work closely with DOE and NASA
- Possible problems in manufacturing of electron collector (low)
 - Detailed design, followed by engineering review (done)
 - Quality assurance provisions in procurement specification
 - Frequent communication with vendor
 - Early fabrication and testing to allow time for a redesign, if necessary (collector is part of R&D)





Communication and Reporting Plan



- Project Assessment and Reporting System (PARS) will be updated on a monthly basis by the Federal Project Director.
- Contractor Project Manager will lead monthly cost and schedule reviews and report the result to the Federal Project Director.
- Contractor Project Manager will lead quarterly overall cost, schedule and technical performance reviews and report the results to the BHSO-DOE office. Federal Project Director will report progress to the DOE Program Manager and NASA on a quarterly basis.
- Federal Project Director and Contractor Project Manager will participate in monthly teleconference calls with the DOE Office of Nuclear Physics.
- Office of Nuclear Physics will conduct annual progress reviews with a committee of experts.
- The standard BNL accounting system will be the basis for collecting cost data.
- Technical performance will be monitored throughout the project to insure conformance to approved functional requirements. Design reviews and performance testing of the completed systems will be used to ensure that the equipment meets the functional requirements.





Preliminary Cost Range



WBS		Description	AY K\$
1.1	Structural	3,275	
	1.1.1	EBIS Hardware	1,300
	1.1.2	LEBT and External Ion Injection	500
	1.1.3	RF Structures	1,475
	Controls S		600
		s/Instrumentation	675
1.4	Magnet Sy	stems	600
1.5	Power Sup	ply Systems	1,975
	RF System		2,325
	Vacuum Sy		1,450
	Cooling Sy		300
1.9	Facility Mo	difications	700
1.10	Installation	1	1,900
	1.10.1	Structural Components	400
	1.10.2	Control Systems	50
	1.10.3	Diagnostics/Instrumentation	200
	1.10.4	Magnet Systems	25
	1.10.5	Power Supply Systems	500
	1.10.6	RF Systems	25
	1.10.7	Vacuum Systems	300
	1.10.8	Cooling Systems	400
1.11	11 Project Services		625
1.12	Commission	oning	
		currently included in above WBSs	
1.13	R&D		1,200
		Conceptual Design Report	200
		Development	1,000
		Subtotal EBIS MIE	15,625
		Contingency	3,675
		Estimated Total Project Cost	19,300

- ~ 60% materials
- ~ 40% labor

% Materials by WBS

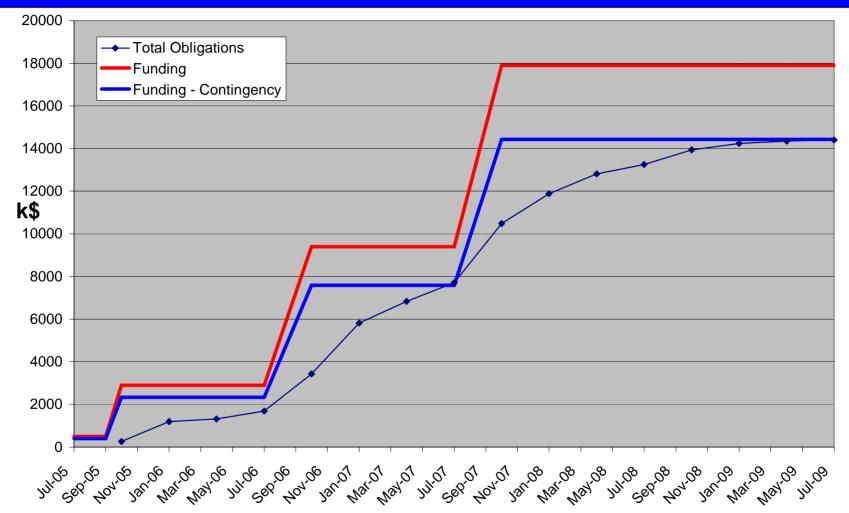
Structural components 62%				
Structural co	62%			
Controls		73%		
Magnets		58%		
Diagnostics		56%		
PS's		84%		
RF systems		72%		
Vacuum		65%		
Cooling		80%		
Facility mod	S	68%		
Installation		9%		
Project Serv	0%			
EBIS, LEBT	49%			
RFQ, Linac,	76%			





Funding/Obligation Profile (preliminary)





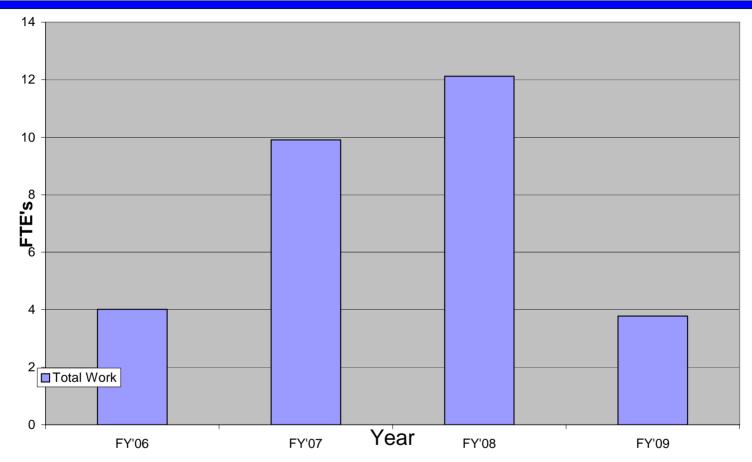
Obligations from MS project, excluding 1.4 M\$ for R&D and CDR prep.





Work vs. year (preliminary)





First view of resource loading. Still needs to be leveled

Total of ~30 FTE's (does not include ~3 FTE's in R&D)





Comments



- Developing/refining Microsoft Project files becoming an excellent tool (June, 2005 ~ 15 from C-AD took 3-day MS Project class)
- Very experienced subsystem managers on the project. They are used to interacting daily, over the course of many projects. Good communication. Agreements on "handoff" points are almost routine.
- WBS set up so level 2 (subsystem managers) = separate accounts.
 Easy to track & control spending.
- Signature approvals = Subsystem manager to me to Thomas to Derek (standard procedure in C-AD)
- Tech notes, design reports, design reviews are standard within C-AD
- At WBS level 2 weekly group meetings are typical already good communication
- Procurement processes, procedure writing, work planning, ESH&Q, etc. all follow standard C-AD and lab procedures.





Summary



- We feel the design is technically sound
 - The Test EBIS has demonstrated that an EBIS meeting RHIC requirements can be built. The RHIC EBIS design incorporates improvements to make it a more reliable device for routine operations.
 - The RFQ and Linac are straightforward, very similar to existing devices.
- A reasonably advanced cost estimate exists (details in tomorrow's talks). More detailed engineering will improve the estimate. (not yet baselined)
- The project team is very experienced. They know how to build things (Booster, RHIC, NSRL, SNS, ...)



